

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kouichi WADA et al. Art Unit :  
Serial No.: Examiner :  
Filed :  
Title : PROBE CARD AND METHOD FOR MANUFACTURING THEREOF

Assistant Commissioner for Patents  
Washington, DC 20231

**PRELIMINARY AMENDMENT**

Prior to consideration of this application, please amend the claims as follows. Please consider the application in light of these amendments and the included remarks.

**IN THE CLAIMS:**

Please amend the following claims as indicated (a marked up version of the claims appears in Appendix A, in accordance with 37 C.F.R. §1.121(c)(1)(ii)):

- 1 3. (Amended) A probe card as claimed in claim 1, wherein said contactor is extended to  
2 a predetermined direction from a surface of said substrate.
- 1 4. (Amended) A probe card as claimed in claim 1, wherein said contactor has a vertical  
2 elasticity against a surface of said substrate.
- 1 5. (Amended) A probe card as claimed in claim 1, wherein at least a portion of said  
2 signal transmission path near said end of it is made of the same amorphous material used for  
3 said contactor.
- 1 6. (Amended) A probe card as claimed in claim 1 further comprising a grounding line,  
2 which is grounded, formed to be apart from and in parallel to said signal transmission path.

1 7. (Amended) A probe card as claimed in claim 1 further comprising a low-resistance  
2 unit having lower resistance than that of said signal transmission path, said low-resistance unit  
3 being formed near said signal transmission path.

1 8. (Amended) A probe card as claimed in claim 1, wherein said contactor comprises a  
2 contacting point made of a contact-point material on an end of it.

1 9. (Amended) A probe as claimed in claim 1, wherein said contactor is coated with a  
2 metal material.

1 10. (Amended) A probe card as claimed in claim 1 further comprising a voltage providing  
2 unit for providing a predetermined voltage, said voltage providing unit being provided on a  
3 backside of said one side of said substrate.

1 13 (Amended) A probe card as claimed in claim 1 further comprising a plurality of  
2 contactors made of an amorphous material having a supercooled liquid phase region, wherein  
3 said plurality of contactors are electrically coupled to said contactors formed on said one side  
4 of said substrate through said signal transmission paths and formed on a backside of said  
5 substrate.

1 16. (Amended) A method for forming a contactor as claimed in claim 14, wherein said  
2 amorphous material layer is formed by sputtering said amorphous material.

1 17. (Amended) A method for forming a contactor as claimed in claim 14, wherein said  
2 step for forming said contactor comprises a step for causing a plastic deformation of said free  
3 unit toward a predetermined direction from said substrate.

1 18. (Amended) A method for forming a contactor as claimed in claim 14, wherein said  
2 step for forming said contactor comprises a step for heating said free unit.

1 19. (Amended) A method for forming a contactor as claimed in claim 14, wherein said  
2 step for forming said contactor comprises a step for providing a bending adjustor at a  
3 predetermined position toward a direction of gravity from a surface of said substrate.

1 21. (Amended) A method for forming a contactor as claimed in claim 14, wherein said  
2 step for forming said contactor comprises a step for providing a bending adjusting member  
3 comprising an engaging unit for suppressing movement of said substrate in a direction of  
4 gravity and a bending adjustor for determining said predetermined position toward a direction  
5 of gravity from a surface of said substrate.

#### REMARKS

Please reconsider the application in view of the above amendments and the following remarks. The claims have been amended solely to remove multiple dependencies. This removal is made both to comply with 37 C.F.R. § 1.75 and to reduce the additional costs of multiple dependent claims. These amendments are in no way related to issues of patentability.

Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 02088/073001).

Respectfully submitted,

Date: 1/15/02



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**Appendix A**  
(deletions are bracketed and insertions are underlined)

IN THE CLAIMS:

- 1 3. (Amended) A probe card as claimed in claim 1 **[or claim 2]**, wherein said contactor is  
2 extended to a predetermined direction from a surface of said substrate.
- 1 4. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 3]**, wherein said  
2 contactor has a vertical elasticity against a surface of said substrate.
- 1 5. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 4]**, wherein at least  
2 a portion of said signal transmission path near said end of it is made of the same amorphous  
3 material used for said contactor.
- 1 6. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 5]** further  
2 comprising a grounding line, which is grounded, formed to be apart from and in parallel to  
3 said signal transmission path.
- 1 7. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 6]** further  
2 comprising a low-resistance unit having lower resistance than that of said signal transmission  
3 path, said low-resistance unit being formed near said signal transmission path.
- 1 8. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 7]**, wherein said  
2 contactor comprises a contacting point made of a contact-point material on an end of it.
- 1 9. (Amended) A probe as claimed in **[any one of]** claim[s] 1 **[to 8]**, wherein said  
2 contactor is coated with a metal material.

1 10. (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 9]** further  
2 comprising a voltage providing unit for providing a predetermined voltage, said voltage  
3 providing unit being provided on a backside of said one side of said substrate.

1 13 (Amended) A probe card as claimed in **[any one of]** claim[s] 1 **[to 12]** further  
2 comprising a plurality of contactors made of an amorphous material having a supercooled  
3 liquid phase region, wherein said plurality of contactors are electrically coupled to said  
4 contactors formed on said one side of said substrate through said signal transmission paths  
5 and formed on **[said]** a backside of said substrate.

1 16. (Amended) A method for forming a contactor as claimed in claim 14 **[or 15]**, wherein  
2 said amorphous material layer is formed by sputtering said amorphous material.

1 17. (Amended) A method for forming a contactor as claimed in **[any one of]** claim[s] 14  
2 **[to 16]**, wherein said step for forming said contactor comprises a step for causing a plastic  
3 deformation of said free unit toward a predetermined direction from said substrate.

1 18. (Amended) A method for forming a contactor as claimed in **[any one of]** claim[s] 14  
2 **[to 17]**, wherein said step for forming said contactor comprises a step for heating said free  
3 unit.

1 19. (Amended) A method for forming a contactor as claimed in **[any one of]** claim[s] 14  
2 **[to 18]**, wherein said step for forming said contactor comprises a step for providing a bending  
3 adjustor at a predetermined position toward a direction of gravity from **[said]** a surface of said  
4 substrate.

1 21. (Amended) A method for forming a contactor as claimed in **[any one of]** claim[s] 14  
2 **[to 18]**, wherein said step for forming said contactor comprises a step for providing a bending  
3 adjusting member comprising an engaging unit for suppressing movement of said substrate in  
4 a direction of gravity and a bending adjustor for determining said predetermined position  
5 toward a direction of gravity from **[said]** a surface of said substrate.